

W. R. HINSDALE.
Water-Heater.

No. 223,911.

Patented Jan. 27, 1880.

Fig: 1.

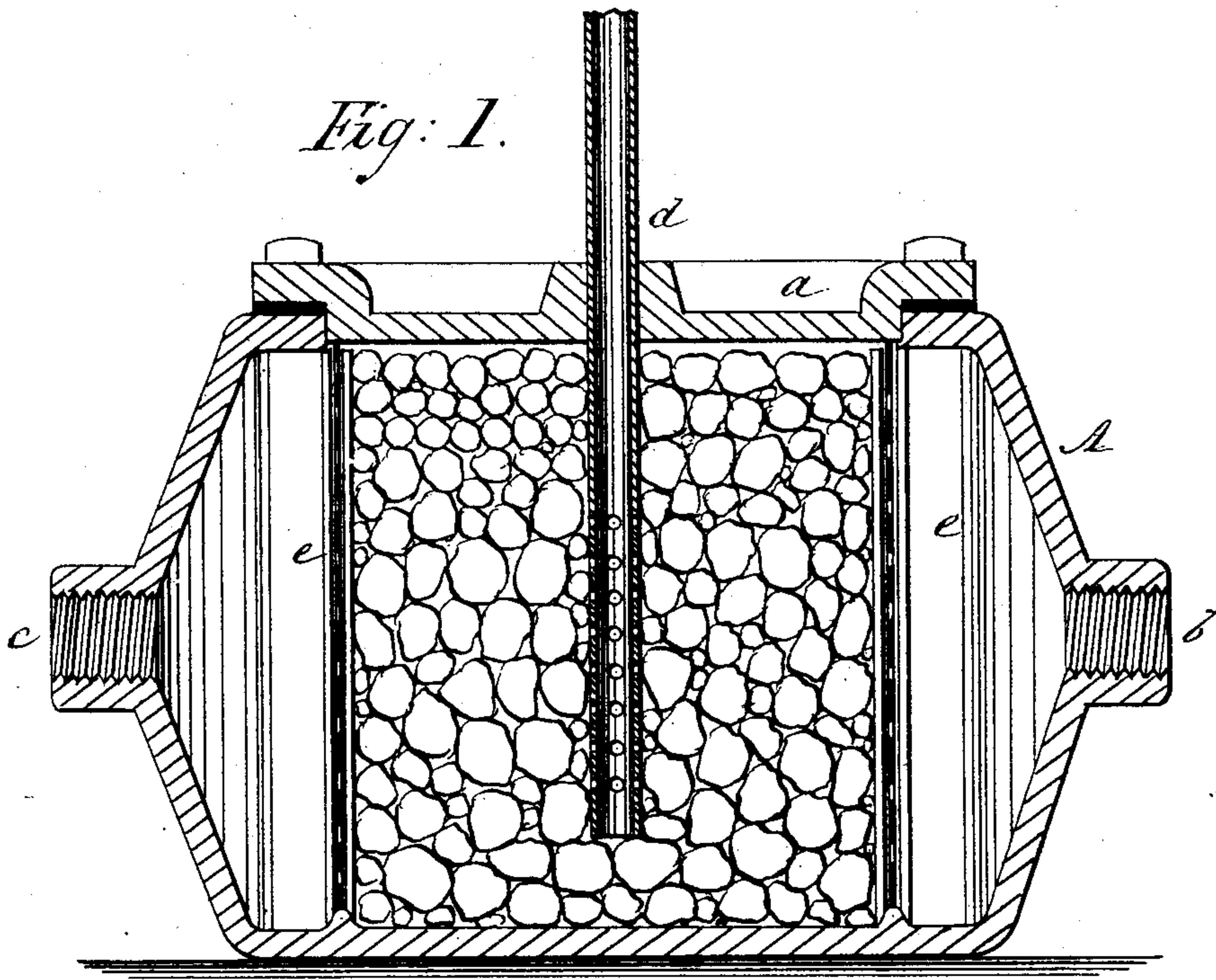


Fig: 2.

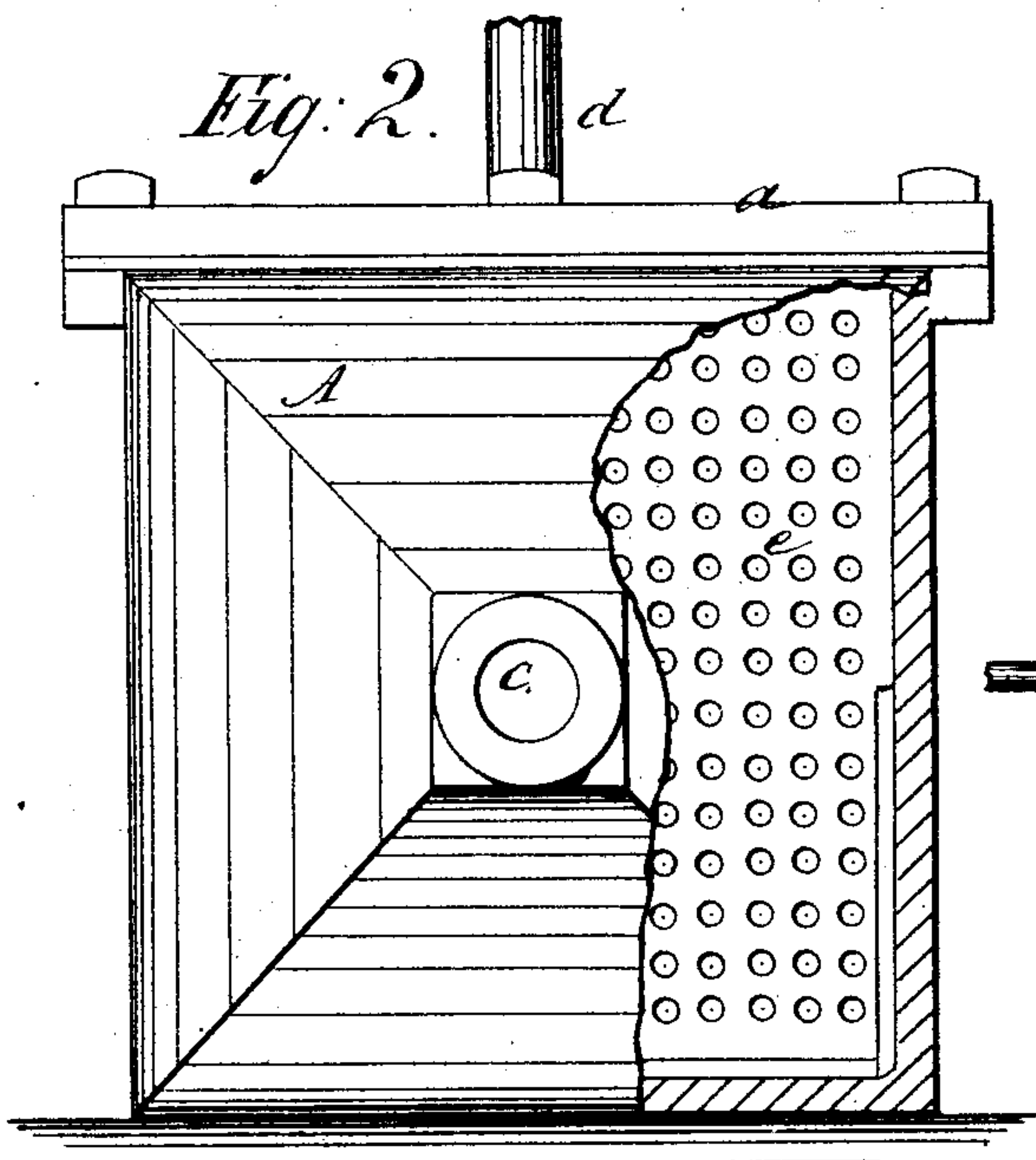
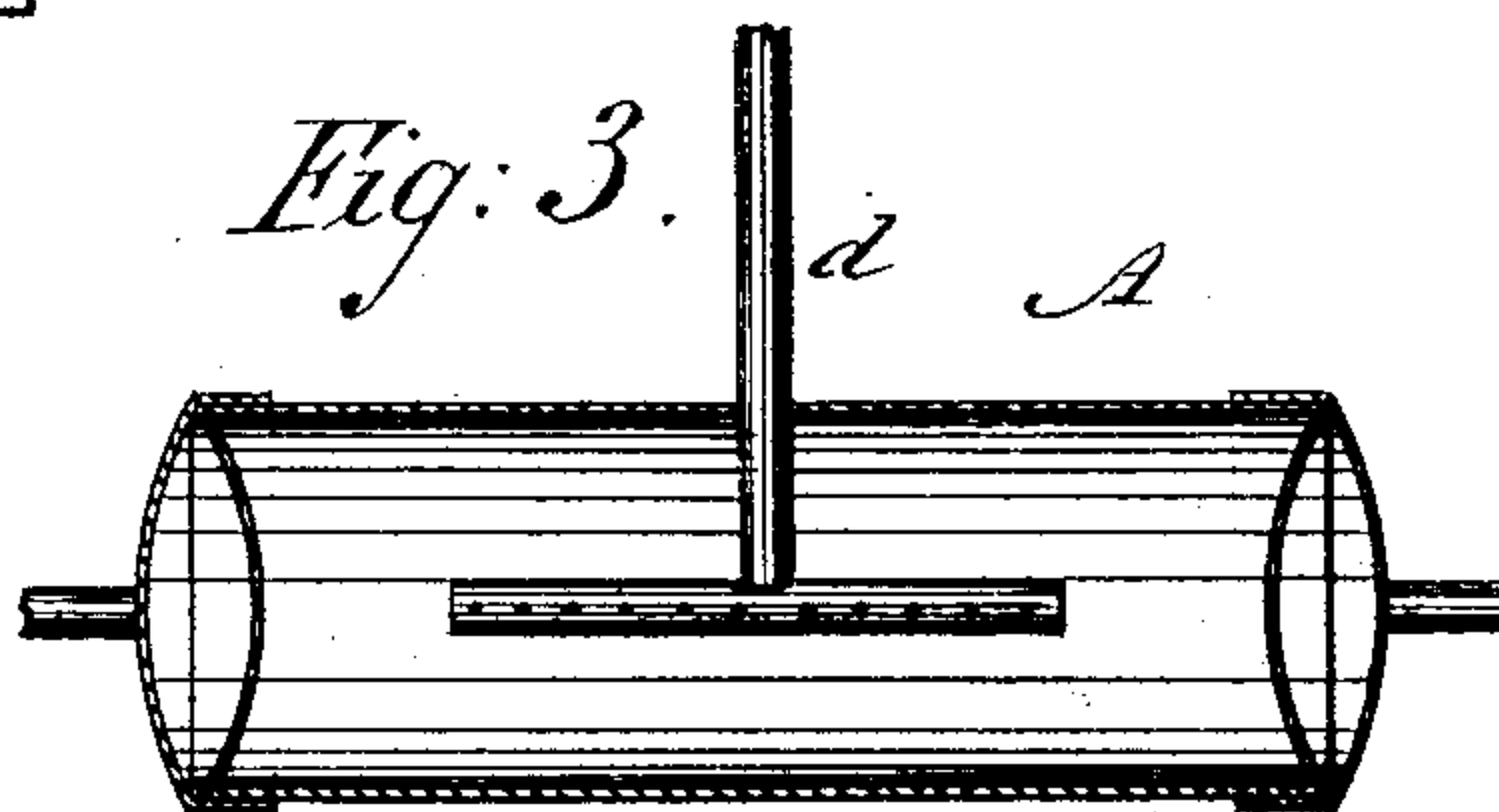


Fig: 3.



WITNESSES:

A. Seehl.
C. Sedgwick

INVENTOR:

W. R. Hinsdale
BY *M. H. Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM R. HINSDALE, OF GARDEN CITY, NEW YORK.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 223,911, dated January 27, 1880.

Application filed November 10, 1879.

To all whom it may concern:

Be it known that I, WILLIAM R. HINSDALE, of Garden City, in the county of Queens and State of New York, have invented a new and useful Improvement in Water-Heaters, of which the following is a specification.

My improvements relate to apparatus for heating water by steam while circulating through pipes, as in dwelling-houses, directly to the wash-basins, bath-tubs, laundry-tubs, or other place of use, or to hot-water-heating apparatus in dwelling-houses, stores, or buildings, such apparatus being particularly adapted for use where cities or towns are supplied with steam for heating and other purposes through street-mains and a water-supply under pressure.

The construction and operation will be more particularly explained with reference to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of the heater. Fig. 2 is an end view, partially broken open. Fig. 3 represents a modification.

Similar letters of reference indicate corresponding parts.

The heater A will preferably be made as a hollow cast-iron box of oblong rectangular form, closed by a cover, *a*, that is attached steam-tight by bolts or screws. At opposite ends of the box are the inlet and outlet openings *b c* for water, which openings are fitted with coupling devices, so that the heater may be connected in a line of water-pipes at the desired place.

The steam-pipe *d* enters through the cover *a* and projects into the central part of the interior chamber, and is formed with numerous holes in the portion that is within the heater.

The heater A is fitted with the interior perforated plates, *e e*, set between projecting lugs or flanges, which plates divide the chamber into three compartments.

The steam-pipe *d* is within the central compartment, and this central portion is filled with gravel, shot, or other granulated substances of similar character.

In operation, the water enters by inlet *b* and passes out by the outlet *c*, passing through the plates *e* and intermediate chambers. The

steam by pipe *d* enters the water and heats the same more or less rapidly, according to the pressure of steam.

The gravel forms numerous channels for the water, so that noise is prevented and the water is rapidly heated.

The steam may be live or exhaust steam, as most convenient, and to prevent back-pressure the pipe *d* should be provided with a check-valve.

The outlet-pipe from the heater may be extended throughout a building in the same manner as when heated, in the usual way, by a water-back to a furnace or otherwise.

The apparatus is particularly adapted for use in hotels, laundries, factories, dye-houses, packing-houses, and other places where a large or small quantity of water is required for heating in the shortest time, or for circulation in pipes for warming buildings.

The apparatus requires no changes in the water-pipes, and no reservoir of heated water is required. The hot water will pass from the heater whenever a cock or tap is opened, and the water will be heated as it passes through the heater.

This apparatus furnishes a simple and convenient means for heating water when steam is available.

The device is simple in construction, inexpensive in comparison with devices heretofore used, and perfectly safe.

In Fig. 3 the heating-box is shown in a different form, which may be most convenient in some situations.

The box A is made in the form of a cylinder, with the steam-pipe, fitted with a T-end, perforated and surrounded by gravel, as before described, and the end of the cylinder is closed by screw-caps, to which inlet and outlet pipes are connected.

The steam-pipe may be coiled within the heater to any desired extent and finely perforated, in which case the gravel would not be required.

I am aware that steam has been injected through nozzles to deaden the noise, and that other devices to the same end have been employed; but

What I claim is—

1. The combination, in a water-heater, with the side-perforated steam-inlet pipe *d*, of a bed of gravel arranged around the same, to allow the water to be heated without noise, as set forth.

2. The water-heater *A*, formed with the inlet and outlets *b c*, for connection to water-pipes,

and fitted with the perforated partitions *e* and steam-supply pipe *d*, substantially as and for the purposes set forth.

WILLIAM R. HINSDALE.

Witnesses:

GEO. D. WALKER,
C. SEDGWICK.